

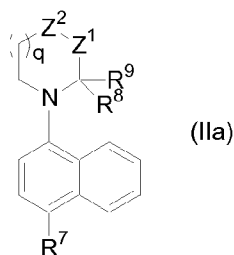
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U.S.S.N.: 10/524,452
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Amendments To The Claims:

This listing of claims will replace all prior versions of claims in the application.

1-6. (canceled)

¹ ~~7~~. (currently amended) A compound represented by the general formula:



wherein R⁷ represents a cyano group, a halogen atom, an acyl group optionally substituted with 1 to 5 halogen atoms, a carboxyl group or a C₁₋₆ alkyl group substituted with 1 to 5 halogen atoms,

R⁸ and R⁹ are the same or different and each represents (1) a hydrogen atom, (2) a cyano group, (3) a C₁₋₆ alkyl group optionally substituted with a hydroxy group or a C₁₋₆ alkoxy group, or (4) an optionally amidated carboxyl group,

q represents 0 or 1,

Z¹ represents a carbonyl group, a carbon atom substituted with a hydroxyimino group,
~~a carbon atom substituted with a C₁₋₆ alkylenedioxy group or a group represented by the~~
formula:



wherein R^{10} and R^{11} are the same or different and each represents (1) a hydrogen atom, (2) a halogen atom, (3) a cyano group, (4) a hydroxy group, (5) a C_{1-6} alkyl group optionally substituted with a halogen atom, a hydroxy group or a C_{1-6} alkoxy group, (6) a C_{1-6} alkoxy group, (7) an amino group optionally substituted with a C_{1-6} alkyl group and/or a C_{1-6} acyl group or (8) an optionally esterified or amidated carboxyl group, and

Z^2 represents a carbonyl group,

a carbon atom substituted with a hydroxyimino group, ~~a carbon atom substituted with a C_{1-4} alkylenedioxy group~~ or a group represented by the formula:

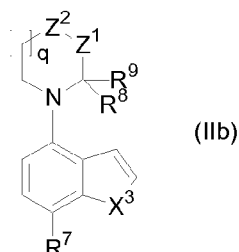


wherein R^{12} and R^{13} are the same or different and each represents (1) a hydrogen atom, (2) a halogen atom, (3) a cyano group, (4) a hydroxy group, (5) a C_{1-6} alkyl group optionally substituted with a halogen atom, a hydroxy group or a C_{1-6} alkoxy group, (6) a C_{1-6} alkoxy group, (7) an amino group optionally substituted with a C_{1-6} alkyl group and/or a C_{1-6} acyl group, or (8) an optionally esterified or amidated carboxyl group, or a salt thereof,

except the case that the compound is 1-[4-(1-piperidiny)-1-naphthyl]ethanone, and 4-(1-piperidiny)-1-naphthonitrile.

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8. (currently amended) A compound represented by the general formula:



wherein X³ represents a sulfur atom or an oxygen atom,

R⁷ represents a cyano group, a halogen atom, an acyl group optionally substituted with 1 to 5 halogen atoms, a carboxyl group or a C₁₋₆ alkyl group substituted with 1 to 5 halogen atoms,

R⁸ and R⁹ are the same or different and each represents (1) a hydrogen atom, (2) a cyano group, (3) a C₁₋₆ alkyl group optionally substituted with a hydroxy group or a C₁₋₆ alkoxy group, or (4) an optionally amidated carboxyl group,

q represents 0 or 1,

Z¹ represents a carbonyl group, a carbon atom substituted with a hydroxyimino group, a carbon atom substituted with a C₁₋₄ alkylidenedioxy group or a group represented by the formula:



wherein R¹⁰ and R¹¹ are the same or different and each represents (1) a hydrogen atom, (2) a halogen atom, (3) a cyano group, (4) a hydroxy group, (5) a C₁₋₆ alkyl group optionally substituted with a halogen atom, a hydroxy group or a C₁₋₆ alkoxy group, (6) a C₁₋₆ alkoxy group, (7) an amino group optionally substituted with a C₁₋₆ alkyl group and/or a C₁₋₆

acyl group, or (8) an optionally esterified or amidated carboxyl group, and

Z^2 represents a carbonyl group,

a carbon atom substituted with a hydroxyimino group, ~~a carbon atom substituted with a C_{1-4} alkylenedioxy group~~ or a group represented by the formula:



wherein R^{12} and R^{13} are the same or different and each represents (1) a hydrogen atom, (2) a halogen atom, (3) a cyano group, (4) a hydroxy group, (5) a C_{1-6} alkyl group optionally substituted with a halogen atom, a hydroxy group or a C_{1-6} alkoxy group, (6) a C_{1-6} alkoxy group, (7) an amino group optionally substituted with a C_{1-6} alkyl group and/or a C_{1-6} acyl group, or (8) an optionally esterified or amidated carboxyl group, or a salt thereof,

except the case that X^3 is an oxygen atom, R^7 is a halogen atom, q is 0, R^8 and R^9 are hydrogen atom, Z^1 is a group represented by the formula:



wherein one of R^{10} and R^{11} represents a hydrogen atom and the other represents an amino group optionally substituted with a C_{1-6} alkyl group and/or a C_{1-6} acyl group, and Z^2 is a methylene group.

³
~~9.~~ (currently amended) 4-[4-(hydroxymethyl)-1-piperidiny]-1-naphthonitrile, 4-[3-(hydroxymethyl)-1-piperidiny]-1-naphthonitrile, 4-[3-(hydroxymethyl)-3-methyl-1-piperidiny]-1-naphthonitrile, 4-(2-methyl-1-pyrrolidiny)-1-naphthonitrile, 4-(2-ethyl-1-pyrrolidiny)-1-

naphthonitrile, 4-(2-vinyl-1-pyrrolidinyl)-1-naphthonitrile, 4-(2-isopropyl-1-pyrrolidinyl)-1-naphthonitrile, 4-(3-hydroxy-2-methyl-1-pyrrolidinyl)-1-naphthonitrile, 4-(3-methoxy-2-methyl-1-pyrrolidinyl)-1-naphthonitrile, 4-(4-methoxy-2-methyl-1-pyrrolidinyl)-1-naphthonitrile, 4-[3-(hydroxymethyl)-2-methyl-1-pyrrolidinyl]-1-naphthonitrile, 4-[3-(1-hydroxy-1-methylethyl)-2-methyl-1-pyrrolidinyl]-1-naphthonitrile, 1-(4-cyano-1-naphthyl)-2-methylpyrrolidine-3-carboxamide, 1-(4-cyano-1-naphthyl)-2-methylpyrrolidine-3-carbonitrile, 4-(2-methyl-1-pyrrolidinyl)-1-benzothiophene-7-carbonitrile, 4-(3-hydroxy-2-methyl-1-pyrrolidinyl)-1-benzothiophene-7-carbonitrile, 4-(4-hydroxy-2-methyl-1-pyrrolidinyl)-1-benzothiophene-7-carbonitrile or an optically active substance or a salt thereof.

10. (canceled)

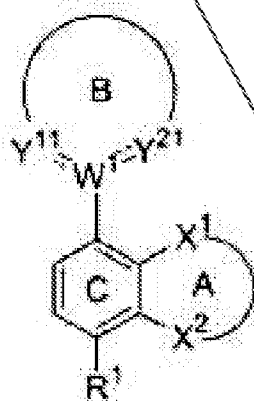
~~11. (withdrawn) A prodrug of the compound according to claim 1.~~

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~~12.~~ (currently amended) A pharmaceutical composition comprising an therapeutically effective amount of the compound according to claim 7 or 8 or a salt thereof, and a pharmaceutically acceptable carrier.

13. (canceled)

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~~14.~~ (previously presented) The pharmaceutical composition according to claim ⁴~~12~~,
which is an androgen receptor agonist.

~~15. (withdrawn) An androgen receptor modulator comprising a compound
represented by the general formula:~~



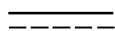
wherein Ring A represents an optionally substituted 5- to 8-membered ring,
Ring B represents a further optionally substituted 4- to 10-membered ring,
Ring C represents a further optionally substituted benzene ring,
X¹ represents an optionally substituted carbon atom, and
X² represents an optionally substituted carbon atom, an oxygen atom or a group
represented by the formula S(O)_k wherein k represents 0, 1 or 2, respectively,
W¹ represents a nitrogen atom or a group represented by the formula CR^a wherein R^a
represents a bond, a hydrogen atom, a hydroxy group or an optionally substituted alkoxy

group,

Y^{11} represents a group represented by the formula CR^2R^{3a} wherein R^2 represents a hydrogen atom, a cyano group, a nitro group, an optionally substituted acyl group, an optionally esterified or amidated carboxyl group or an optionally substituted hydrocarbon group, and R^{3a} represents a bond, a hydrogen atom, a cyano group, a nitro group, an optionally substituted acyl group, an optionally esterified or amidated carboxyl group or an optionally substituted hydrocarbon group, respectively, and

Y^{21} represents a group represented by the formula CR^4R^{sup5} wherein R^4 represents a hydrogen atom, a cyano group, a nitro group, an optionally substituted acyl group, an optionally esterified or amidated carboxyl group or an optionally substituted hydrocarbon group, and R^{sup5} represents a bond, a hydrogen atom, a cyano group, a nitro group, an optionally substituted acyl group, an optionally esterified or amidated carboxyl group or an optionally substituted hydrocarbon group, respectively, an optionally substituted nitrogen atom, an oxygen atom or a group represented by the formula $S(O)_m$ wherein m represents 0, 1 or 2, respectively, and when Ring B is a further optionally substituted bicyclic ring, CR^2 in Y^{11} or CR^4 or the nitrogen atom in Y^{21} may constitute a part of Ring B,

R^1 represents an electron-withdrawing group, the formula



represents a single bond or a double bond

or a salt or a prodrug thereof.

16. (withdrawn) The modulator according to claim 15, which is an androgen receptor agonist.

17. (withdrawn) An agent for preventing and/or treating hypogonadism or male climacteric disturbance, comprising the modulator according to claim 15.

18. (withdrawn) An agent for preventing and/or treating osteoporosis, comprising the modulator according to claim 15.

19. (withdrawn) An agent for preventing and/or treating hormone-resistant cancer, comprising the modulator according to claim 15.

20. (withdrawn) The agent according to claim 19, wherein the hormone-resistant cancer is LHRH agonist-resistant cancer.

21. (withdrawn) The agent according to claim 19, wherein the cancer is prostate cancer.

22. (withdrawn) A method for preventing and/or treating hormone-resistant cancer,

comprising administering an effective amount of an androgen receptor agonist to a mammal.

23. (withdrawn) An agent for preventing and/or treating hormone-resistant cancer, comprising an androgen receptor agonist.

24. (withdrawn) The agent according to claim 23, wherein the androgen receptor agonist is a non-steroidal compound.

25. (withdrawn) Use of the compound according to claim 1 or a salt or a prodrug thereof for manufacturing an androgen receptor agonist.

26. (withdrawn) Use of the compound according to claim 1 or a salt or a prodrug thereof for manufacturing an agent for preventing and/or treating cancer.

27. (canceled)

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~~28.~~ (currently amended) ~~The modulator according to claim 27, which is~~ A method of
agonizing an androgen receptor in a mammal, which comprises administering a
therapeutically effective amount of the compound according to claim ¹ or ² or a salt thereof
agonist.

⁷
~~29.~~ (currently amended) ~~An agent for preventing and/or~~ A method for treating
hypogonadism or male climacteric disturbance in a mammal, which comprises administering
a therapeutically effective amount of the compound according to claim 7 or 8 or a salt thereof,
~~comprising the modulator according to claim 27.~~

30-31. (canceled)

⁸
~~32.~~ (currently amended) The ~~method agent~~ according to claim ⁶~~31~~, wherein the ^{agonizing is in}
~~hormone-resistant cancer is~~ LHRH agonist-resistant cancer.

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~~33.~~ (currently amended) The ~~method agent~~ according to claim ⁸~~31 or 32~~, wherein the
cancer is prostate cancer.